

In the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application. Please cancel claims 1-25 without prejudice to or disclaimer of the subject matter therein. Please add new claims 26-53. No new matter has been added.

Claims 1-25 (Cancelled)

26. A device, comprising:

a housing;

an actuator coupled to said housing, the actuator configured to receive a control signal, the control signal based on data values associated with at least one of an event associated with an external environment and a function of an external apparatus, the actuator configured to produce an inertial force based on the control signal, the inertial force having a first component associated with a frequency range and a second component associated with a frequency range different from the frequency range of the first component; and

a compliant suspension coupled to said actuator and said housing, said compliant suspension member having a compliance such that said compliant suspension is configured to magnify the first component of the inertial force, the compliant suspension configured to impart the magnified inertial force including the magnified first component of the inertial force to the housing.

27. The device of claim 26, wherein the inertial force is operative to impart a periodic vibration to said housing.

28. The device of claim 26, wherein said compliant suspension includes at least one spring member.

29. The device of claim 26, wherein said compliant suspension is a leaf spring.

30. The device of claim 26, said compliant suspension including at least one spring member, wherein the at least one spring member includes at least one spring beam coupled to said housing, said spring beam configured to flex, the compliance of the spring member being defined at least in part by the flex of the spring beam.
31. The device of claim 26, wherein said compliant suspension includes a diaphragm.
32. The device of claim 26, further comprising a damping member coupled between said actuator and said housing, said damping member configured to reduce a peak magnitude of a periodic vibration imparted to said housing by the inertial force.
33. The device of claim 26, further comprising a damping member including a foam, the damping member being coupled between said actuator and said housing, said damping member configured to reduce a peak magnitude of a periodic vibration imparted to said housing by the inertial force.
34. The device of claim 26, wherein said actuator is coupled to a bracket, said bracket being coupled to said housing by said compliant suspension.
35. The device of claim 26, wherein said control signal is received from a video game console and said external environment is a game running on said console, said control signal being based on an event in the game.
36. The device of claim 26, wherein said actuator is a rotary motor and said compliant suspension is coupled between a housing of said motor and said housing of said device.
37. The device of claim 36, wherein an eccentric mass is coupled to a rotating shaft of said motor and is configured to output the inertial force.
38. The device of claim 26, wherein said actuator is a linear motor including an oscillating element and is configured to output the inertial force.

39. The device of claim 26, wherein said control signal is provided by a controller locally coupled to the device.

40. The device of claim 39, wherein said local controller is a microprocessor, and said microprocessor is configured to receive data from a host computer.

41. The device of claim 26, wherein said control signal is output by a host computer such that said host computer directly controls the inertial force.

42. A method, comprising:

transmitting an input signal from a haptic feedback device, the haptic feedback device including a housing, an actuator coupled to the housing and a compliant suspension coupled to the actuator and the housing;

receiving at the actuator a control signal, the control signal based on data values associated with at least one of an event occurring in an external environment and a function of an external apparatus, the event associated with the input signal;

outputting an inertial force via the actuator, the inertial force being based on the control signal, the inertial force having a first component associated with a frequency range and a second component associated with a frequency range different from the frequency range of the first component; and

transmitting a vibration associated with the inertial force to the housing via the compliant suspension, the compliant suspension having a compliance such that the compliant suspension is configured to magnify the first component of the inertial force.

43. The method of claim 42, further comprising reducing a peak magnitude of the inertial force using a damper.

44. The method of claim 42, wherein the receiving the control signal includes receiving the control signal from a controller locally coupled to the haptic feedback device.

45. The method of claim 42, wherein the receiving the control signal includes receiving the control signal at the actuator directly from a host computer such that the host computer directly controls the output of the vibration.

46. A device, comprising:

a housing;

a manipulandum coupled to said housing;

a sensor configured to detect a manipulation of said manipulandum, the sensor further configured to output sensor data, the sensor data based on the detected manipulation;

an actuator coupled to said housing, said actuator configured to receive a control signal based on at least one of an event occurring in an external environment and a function associated with an external apparatus, the actuator further configured to output an inertial force based on the control signal, the inertial force having a first component associated with a frequency range and a second component associated with a frequency range different from the frequency range of the first component; and

a compliant member coupled to said actuator and said housing, said compliant member having a compliance such that said compliant member is configured to magnify the first component and the second component of the inertial force, the compliant member configured to impart the inertial force, including the magnified first component of the inertial force and the magnified second component of the inertial force to the housing.

47. The device of claim 46, wherein the magnification of the second component of the inertial force is different from the magnification of the first component of the inertial force.

48. The device of claim 46, wherein the magnification of the second component of the inertial force is substantially zero.

49. The device of claim 46, the actuator being a first actuator, the compliant member being a first compliant member, further comprising:

a second actuator configured to produce an inertial vibration; and
a second compliant member coupled to said second actuator and said housing, the second compliant member configured to magnify the inertial vibrations.

50. A processor-readable medium storing code representing instructions to cause a processor to perform a process, the code comprising code to:

transmit an input signal from a haptic feedback device, the haptic feedback device including a housing, an actuator coupled to the housing and a compliant suspension coupled to the actuator and the housing;

receive at the actuator a control signal, the control signal based on data values associated with at least one of an event occurring in an external environment and a function of an external apparatus, the event associated with the input signal;

output an inertial force via the actuator, the inertial force being based on the control signal, the inertial force having a first component associated with a frequency range and a second component associated with a frequency range different from the frequency range of the first component; and

transmit a vibration associated with the inertial force to the housing via the compliant suspension, the compliant suspension having a compliance such that the compliant suspension is configured to magnify the first component of the inertial force.

51. The processor-readable medium of claim 50, the code further comprising code to reduce a peak magnitude of the inertial force using a damper.

52. The processor-readable medium of claim 50, wherein the code to receive the control signal includes code to receive the control signal from a controller locally coupled to the haptic feedback device.

53. The processor-readable medium of claim 50, wherein the code to receive the control signal includes code to receive the control signal at the actuator directly from a host computer such that the host computer directly controls the output of the vibration.